

CLAIMS

1. 1. A magnesium based alloy containing
  - a) at least 86 wt% Mg,
  - b) 4.8 to 9.2 wt% aluminum,
  - c) 0.08 to 0.38 wt% manganese,
  - d) 0.00 to 0.9 wt% zinc,
  - e) 0.2 to 1.2 wt% calcium,
  - f) 0.05 to 1.4 wt% strontium, and
  - g) 0.00 to 0.8 wt% rare earth elements.
2. An alloy according to claim 1, further comprising up to 0.02 wt% zirconium.
3. An alloy according to claims 1 and 2, further comprising up to 0.001 wt% beryllium.
4. An alloy according to claims 1 to 3, further comprising incidental impurities.
5. An alloy according to claims 1 to 4, comprising up to 0.004 wt% iron, up to 0.001 wt% nickel, up to 0.003 wt% copper, or up to 0.03 wt% silicon.
6. An alloy according to claims 1 to 5, wherein the total amount of calcium and strontium is higher than 0.9 wt% and lower than 1.6 wt%.

7. An alloy according to claim 1, which contains 7.8 to 8.8 wt% aluminum, 0.00 to 0.3 wt% zinc, 0.65 to 1.05 wt% calcium, 0.15 to 0.65 wt% strontium, 0.00 to 0.2 wt% rare earth elements, and 0.08 to 0.28 wt% manganese.
8. An alloy according to claim 7, comprising in their structure an Mg-Al solid solution as a matrix, and intermetallic compounds  $\text{Mg}_{17}\text{Al}_9\text{Ca}_2\text{Sr}$ ,  $\text{Al}_2\text{Ca}_{0.5}\text{Sr}_{0.5}$ , and  $\text{Al}_5(\text{Mn},\text{RE})_5$ , said intermetallic compounds being located at grain boundaries of the Mg-Al solid solution.
9. An alloy according to claim 1, which contains 4.8 to 6.0 wt% aluminum, 0.10 to 0.37 wt% manganese, 0.00 to 0.3 wt% zinc, 0.20 to 0.30 wt% calcium, 0.7 to 1.4 wt% strontium, and 0.1 to 0.6 wt% rare earth elements.
10. An alloy according to claim 9, comprising in their structure an Mg-Al solid solution as a matrix, and intermetallic compounds  $\text{Al}_2(\text{Sr},\text{Ca})$ ,  $\text{Al}_2(\text{Sr},\text{Ca},\text{RE})_1$  and  $\text{Al}_x(\text{Mn},\text{RE})_y$ , said intermetallic compounds being located at grain boundaries of the Mg-Al solid solution.
11. An alloy according to any of claims 1 to 10, wherein rare earth elements comprise a mischmetal.

12. An alloy according to any of claims 1 to 11, which is beryllium free.
13. An alloy according to any of claims 1 to 12 having a high resistance to creeping at ambient and elevated temperatures, substantially as described in the specification.
14. An article which is a casting of a magnesium alloy of any of claims 1 to 13.
15. An article of claim 14, wherein the casting is chosen from the group consisting of high-pressure die-casting, sand casting, permanent mold casting, squeeze casting, semi-solid casting, thixocasting and thixomolding.